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42. A method according to claim 35, wherein during the growth of the V4 region the step of correcting for leakages dorsoposteriorly through the superior medullary velum to the cisterna ambiens, comprises:

- 1) hindering the number of foreground pixels of the current axial slice from increasing by 50% more than that in the previous slice in the inferior direction; and
- 2) maintaining the distance between the centre of gravity of the foreground region of V4 and the MSP less than around 2 mm.

43. A method according to claim 35, wherein during the growth of the V4 region the step of correcting for leakages ventroposteriorly through the inferior medullary velum to the cisterna magna, comprises maintaining the width of the foreground region of V4 at the lateral recesses less than around 2 mm.

44. A method according to any preceding claim, further comprising repeating the region growing with narrower growing ranges after detection of leakage.

45. A method according to claim 44, wherein the step of repeating the region growing with narrower growing ranges comprises narrowing the intensity range and/or the spatial range of the growing region.

46. A method according to claim 45, wherein the narrowing of the intensity range comprises decreasing the value of the scaling factor  $s$ , in the equation defining the growing range of intensity  $[\mu - s*(\mu - m), \mu + s*(M - \mu)]$ , wherein  $m$  is the minimum,  $M$  the maximum and  $\mu$  the mean values of the CSF range and  $s$  is a scaling factor between 0 and 1.

47. A method according to claim 46 wherein the narrowing of the intensity range is performed iteratively by decreasing the value of  $s$ , followed by performing the region growing again and checking whether the leakage is avoided.

48. A method according to claim 1, wherein the step of connecting the ventricular regions VLL-B and VLL-I comprises:

- 1) locating the leftmost inferior pixel of [VLR-B,  $P_1$ ] where  $P_1$  is the left most inferior pixel of VLR-B;
- 2) growing VLR-I on a coronal slice in a posterior direction;
- 3) checking whether the number of foreground region is equal to or less than 1; if not, go to 4); if yes,
  - find the minimum rectangular area containing all the foreground pixels of the previous coronal slice in anterior direction;
  - pass the rectangular area to the current coronal slice  $C_{cur}$ ;

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